

WE CLAIM:

1. A communication apparatus, comprising:

- a first interface for exchanging data with a first neighboring entity;
- a second interface for exchanging data with a second neighboring entity;
- a memory for storing codec information regarding said communication apparatus;
- a control entity operative to detect a first message from the first neighboring entity via the first interface, the first message being indicative of codec information regarding an originating entity;
- responsive to detection of the first message, the control entity being operative to perform an assessment of compatibility between the codec information regarding the originating entity and the codec information regarding said communication apparatus;
- responsive to the assessment of compatibility being positive, the control entity being operative to self-identify the communication apparatus as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity;
- responsive to the assessment of compatibility being negative, the control entity being operative to self-identify the communication apparatus as a candidate for non-terminally supporting a subsequent codec-bypass negotiation with the originating entity.

2. The communication apparatus defined in claim 1, further comprising:

- responsive to the assessment of compatibility being positive, the control entity being further operative to release a second message towards the first neighboring entity via the first interface, the second message being indicative of the communication apparatus being self-identified as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity.

3. The communication apparatus defined in claim 1, further comprising:

- responsive to absence of any message from the second entity indicative of the second entity being self-identified as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity, effecting said subsequent codec-bypass negotiation with the first entity.

4. The communication apparatus defined in claim 1, further comprising:

- the control entity being operative to forward the first message to the second remote entity via the second interface.

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5. The communication apparatus defined in claim 1, wherein the first and second interfaces are packet interfaces.

10 6. The communication apparatus defined in claim 1, wherein the first interface is a packet interface and the second interface is a circuit-switched interface.

7. The communication apparatus defined in claim 1, wherein the first and second interfaces are circuit-switched interfaces.

15 8. The communication apparatus defined in claim 1, the control entity being further operative to:

- detect a second message received from the second neighboring entity, the second message being indicative of the second neighbouring entity apparatus being self-identified as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity;
- responsive to detection of the second message, self-identify the communication apparatus as a candidate for non-terminally supporting a subsequent codec-bypass negotiation with the originating entity.

20 25 9. The communication apparatus defined in claim 8, further comprising:

- the control entity being operative to forward the second message to the first remote entity via the first interface.

10. The communication apparatus defined in claim 8, further comprising:

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- the control entity being further operative to monitor messages exchanged via the first and second interfaces that are indicative of negotiation of a codec-bypass connection between the originating entity and an entity different from the originating entity.

11. The communication apparatus defined in claim 10, said negotiation being a first negotiation, wherein the control entity is further operative to:

- detect success or failure of said first negotiation; and
- responsive to failure of said first negotiation, and if the communication apparatus is self-identified as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity, negotiate with the originating entity a codec-bypass connection between the communication apparatus and the originating entity.

10 12. The communication apparatus defined in claim 11, further comprising:

- responsive to success of said first negotiation, and if the communication apparatus is self-identified as a candidate or terminally supporting a subsequent codec-bypass negotiation with the originating entity, the control entity being operative to self-identify the communication as a candidate for non-terminally supporting a codec-bypass negotiation with the originating entity.

13. The communication apparatus defined in claim 10, said negotiation being a first negotiation, wherein the control entity is further operative to:

- detect success or failure of said first negotiation; and
- responsive to success of said first negotiation, and if the communication apparatus is self-identified as a candidate or terminally supporting a subsequent codec-bypass negotiation with the originating entity, the control entity being operative to self-identify the communication as a candidate for non-terminally supporting a codec-bypass negotiation with the originating entity.

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14. The communication apparatus defined in claim 11, wherein the originating entity is an endpoint gateway.

15. The communication apparatus defined in claim 11, wherein the originating entity is an in-path gateway.

16. A method of establishing candidacy of a gateway as terminally or non-terminally supporting a codec-bypass negotiation with an originating entity in a communications network, comprising:

- detecting a first message received from a first neighboring entity, the first message being indicative of codec information regarding the originating entity;
- assessing compatibility between the codec information regarding the originating entity and the codec information regarding the gateway;
- responsive to the assessment of compatibility being positive, self-identifying the gateway as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity;
- responsive to the assessment of compatibility being negative, self-identifying the gateway as a candidate for non-terminally supporting a subsequent codec-bypass negotiation with the originating entity.

17. Computer-readable media tangibly embodying a program of instructions executable by a computer to perform a method of establishing candidacy of a gateway as terminally or non-terminally supporting a codec-bypass negotiation with an originating entity in a communications network, the method comprising:

- detecting a first message received from a first neighboring entity, the first message being indicative of codec information regarding the originating entity;
- assessing compatibility between the codec information regarding the originating entity and the codec information regarding the gateway;
- responsive to the assessment of compatibility being positive, self-identifying the gateway as a candidate for terminally supporting a subsequent codec-bypass negotiation with the originating entity;
- responsive to the assessment of compatibility being negative, self-identifying the gateway as a candidate for non-terminally supporting a subsequent codec-bypass negotiation with the originating entity.

18. A method of establishing a codec-bypass connection between a first gateway and one of a plurality of in-path gateways located along a path from the first gateway to a second gateway, comprising:

5 - identifying a target in-path gateway from among the plurality of in-path gateways, the target in-path gateway being the in-path gateway furthest along the path from the first gateway which is characterized by codec-bypass connection compatibility with the first gateway;

5 - establishing a codec-bypass connection between the first gateway and the target in-path gateway.

19. The method defined in claim 18, further comprising:

10 - performing a determination of whether the target in-path gateway is involved in a prior codec-bypass connection with the second gateway;

10 - wherein performing the establishing is conditional upon said determination being negative.

20. The method defined in claim 19, the target in-path gateway being a first target in-path gateway, the method further comprising:

15 - responsive to said determination being positive:

20 - identifying a second target in-path gateway from among the plurality of in-path gateways, the second target in-path gateway being the in-path gateway furthest along the path from the first gateway which is characterized by codec-bypass connection compatibility with the first gateway and which is not involved in a codec-bypass connection with the second gateway;

20 - establishing a codec-bypass connection between the first gateway and the second target in-path gateway instead of with the first target in-path gateway.

25 21. The method defined in claim 18, further comprising:

30 - performing a determination of whether the target in-path gateway is involved in a prior codec-bypass connection with the second gateway;

30 - wherein performing the establishing is conditional upon said determination being negative.

22. A method of establishing a codec-bypass connection along a path between a first gateway and a second gateway, the path comprising a plurality of in-path gateways, comprising:

- identifying a first sub-path between the first gateway and a first target in-path gateway from among the plurality of in-path gateways, the first target in-path gateway being the in-path gateway furthest along the path from the first gateway which is characterized by codec-bypass connection compatibility with the first gateway;
- identifying a second sub-path between the second gateway and a second target in-path gateway from among the plurality of in-path gateways, the second target in-path gateway being the in-path gateway furthest along the path from the second gateway which is characterized by codec-bypass connection compatibility with the second gateway;
- determining the lengths of the first and second sub-paths;
- if the first sub-path is longer than the second sub-path, establishing a codec-bypass connection between the first gateway and the first target gateway;
- if the second sub-path is longer than the first sub-path, establishing a codec-bypass connection between the second gateway and the second target gateway.

23. The method defined in claim 22, further comprising:

- if the first sub-path is not longer than the second sub-path and the second sub-path is not longer than the first sub-path:
 - determining the priorities of the codec-bypass connection compatibility of the first target gateway with the first gateway and of the second target gateway with the second gateway and:
 - if the codec-bypass connection compatibility of the first target gateway with the first gateway has a greater priority than the codec-bypass connection compatibility of the second target gateway with the second gateway, establishing a codec-bypass connection between the first gateway and the first target gateway;
 - if the codec-bypass connection compatibility of the second target gateway with the second gateway has a greater priority than the codec-bypass connection compatibility of the first target gateway with the first gateway, establishing a codec-bypass connection between the second gateway and the second target gateway.